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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,749	06/01/2001	Michiaki Sakamoto	NEC01P012-JTb	8472

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EXAMINER

TON, MINH TOAN T

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/870,749	Applicant(s) SAKAMOTO ET AL.	
	Examiner Toan Ton	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9,10 and 14-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-8 is/are allowed.
- 6) ☒ Claim(s) 1-6,11-13 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

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Election/Restriction

1. An election without traverse of species I directing to claims 7-8 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiji et al (JP 6-273802).

Hiji discloses an active-matrix liquid crystal display (LCD) device comprising: a first substrate 1'; a second substrate 2' disposed in opposing relation to the first substrate; a liquid crystal layer 3 sandwiched between the first substrate and the second substrate; an overcoating layer 18 disposed on the first substrate; a plurality of pixel electrodes 7 arranged in a matrix on the first substrate and on the overcoat layer; a plurality of switching elements disposed on the first substrate in association with the pixel electrodes, respectively, for driving the pixel electrodes, respectively; a plurality of data lines 4 disposed on the first substrate at respective gaps between adjacent two of the pixel electrodes, for supplying data signals to the switching elements; and a black matrix 11 disposed on the first substrate in association with the data lines, for blocking light passing in a predetermined viewing angle range through a light leakage region created in the liquid crystal layer depending on a potential difference between adjacent two of the pixel electrodes.

Hiji discloses in page 2, paragraph [8] to paragraph [10]: the conventional active-matrix LCD device, in a non-selection period, the potential difference may be produced between the pixel electrode and a signal/scanning line, and a longitudinal direction electric field may occur at the periphery of the pixel electrode

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→ the reverse tilt field comprises the problem of reducing the contrast of the display. Hiji solves the problem by employing a black matrix covering the portion where the reverse tilt field occurs.

4. Claims 2, 5, 12, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiji as applied to claims 1, 4, 11 above.

Hiji fails to disclose color filters. However, the use of color filters on either substrate is common and known for providing a color display device. Therefore, it would have been obvious to one of ordinary skill in the art to employ color filters on the first substrate, as common and known for providing a color display device.

5. Claims 3, 6, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiji as applied to claims 2, 5, 12, 18 above, and further in view of Sato et al (US 5718992).

Hiji fails to disclose the black matrix made of electrically insulating material.

Metal is a common and known material for a black matrix, however, the use of metal yields several problems such as pinholes, high light reflectance that leads to inferior viewing properties, low quality color display device (see col. 2, lines 6-19 of Sato). These problems are overcome through the use of resin composition admixed with black pigments (see col. 2, lines 20-22 of Sato). Therefore, it would have been obvious to one of ordinary skill in the art to employ an electrically insulating material such as resin composition admixed with black pigments for preventing problems such as pinholes, high light reflectance that leads to inferior viewing properties, low quality color display device.

Allowable Subject Matter

6. Claims 7-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not anticipate nor render obvious to one ordinary skilled in the art an active matrix liquid crystal

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display device comprising a combination of various elements as claimed, more specifically, the black matrix having a portion overlapping the pixel electrodes, the portion having a width W represented by $W \geq d_{LC}/2 + d_{oc} \cdot \tan \Theta$, where d_{LC} represents a thickness of said liquid crystal layer, d_{oc} represents a thickness of said overcoat layer on the black matrix, and Θ represents one-half of a given viewing angle 2Θ .

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan Ton whose telephone number is (703) 305-3489. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

June 13, 2003


TOANTON
PRIMARY EXAMINER